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ABSTRACT

This report presents the findings of a survey of 292 preservice teachers concerning their attitudes toward the personal use and school use of microcomputers. The students' attitudes were measured on a variety of issues including computer assisted instruction, feasibility of computer use, value of computer use, confidence in personal ability to use computers, and interest in using computers. An additional purpose of the study was to design two Likert attitude scales, one for attitudes toward the use of computers in schooling, and the other for attitudes toward personal use of computers. The method used to design the questionnaire is discussed as well as the research method used to validate the two attitude scales. Results of the survey indicated that students who feel secure in their own personal use of computers also feel positive toward the use of computers in schools. Copies of both attitude scales are provided. (3 references) (DB)

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ATTITUDES TOWARD PERSONAL AND SCHOOL USE OF COMPUTERS

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ATTITUDES TOWARD PERSONAL AND SCHOOL USE OF COMPUTERS

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Educational researchers and practitioners agree that course evaluations should rely on a number of variables. Variables such as student evaluations, student growth with respect to course goals, student attitudes and behavior changes, and efficiency of course management are accepted as important variables to consider when evaluating a course. With the growing availability of microcomputers in schools, it is particularly important to develop school personnel who not only have the knowledge to use computers, but also have the confidence and willingness to explore computer technology to invent and implement new models for instruction. It is especially important to measure the effectiveness of instructional computing courses in terms of attitudes toward the use of computers in schooling, attitudes toward personal use of computers, and growth with respect to learning sound ways to integrate computers into the instructional or managerial process.

PURPOSE

This study had two main purposes. The first purpose was to design two Likert Attitude Scales: *Attitudes Toward the Use of Computers in Schooling* (**ATSC**) and *Attitudes Toward Personal Use of Computers* (**ATPC**). The second purpose was to examine the relationship between attitudes toward personal use of computers and school uses of computers. The ATSC scale measures attitudes toward the general use of computing in the school environment for instructional or

management purposes. Specifically this scale is to focus on attitudes related to how individuals in certain groups perceive 1) the potential usefulness of computers for instruction and management; 2) the feasibility of using computers in school environments for instruction and management; 3) how computers might enhance affective outcomes in schooling; and 4) the dependence of society on computer literate citizenry.

The ATPC Scale measures attitudes toward personal use of computers in terms of 1) usefulness, 2) interest, 3) confidence, and 4) stereotyping of computer users. The initial target audiences for development of the scales consisted of 292 pre-service teachers enrolled in a course entitled *Introduction to Computers in Education*. This is a required course for all education majors at the College of Education, University of South Florida.

RELATED RESEARCH

A review of the research literature revealed only a few studies that involved the development of valid and reliable scales for measuring attitudes toward computers and none were found for measuring attitudes toward the use of computers in schooling. Gressard and Loyd (1985) reported the develpment of the Computer Attitude Scale (CAS), a Likert-type instrument with 30 items relating to three factors -- usefulness, interest, and confidence. The CAS was subjected to three validation studies. Participants were elementary, middle school, and secondary teachers. Results of the three validation studies indicate that: 1) the scores of the

three subscales are sufficiently stable; 2) the CAS has reasonable convergent validity; and, 3) the CAS is sensitive to attitude changes resulting from computer instruction and experience. Richards (1986), describes the development of a scale designed to assess some basic students attitudes about computer usage. Bear (1987) reported the development of a scale designed to measure elementary and secondary students' attitudes toward computers. Each of these studies involved scales unique to the goals of the researcher and the respective target audience. Of the three, the Gressard and Loyd study serves as the best model for the current study in that it is an aggregate of subscales assummed to represent independent factors. However, the Gressard and Loyd scale does not include items related to the stereotyping of computer users. None of the scales dealt specifically with school uses of computers in a comprehensive sense.

METHODS AND RESULTS

An item pool was collected for each scale. Each item pool was generated from a variety of sources - computer educators, graduate students, prospective school teachers, practicing school teachers, and lay citizens. Each item was examined to determine its appropriateness. Several types of items were discarded:

1. Cognitive statements that could illicit the same response from two different individuals, one having a positive attitude and one having a negative attitude. For example, the item *Computers are too expensive for education.* was eliminated.

2. Facts such as *Using a computer requires learning new skills.*

3. Compound statements such as *It should be a top priority to train all*

teachers and school administrators to use a computer. were either eliminated or rewritten as two items.

A set of four judges independently sorted the items to insure that each item fell within the limits of the identified constructs. The resulting pool for the ATSC pool contained 46 items and that for the ATPC contained 21 items. For each item, respondents were to select one of the following: strongly agree, agree, neutral, disagree, or strongly disagree to express their agreement or disagreement with the item. Both scales were administered to 292 pre-service teachers. Each item was scored on a 5 point continuum, 5 points for strongly agree, 4 for agree, 3 for neutral, 2 for disagree and 1 for strongly disagree. To obtain attitude measures, the total of item scores was computed for each scale. A high score on either scale indicates a positive attitude, while a low score indicates a negative attitude. Initial responses for negative items were reversed so that scores obtained on negative items would be consistent with the method used for finding total measures of attitudes. Percentages of respondents selecting each possible response, the mean score, standard deviation, and item discrimination index were computed for each iten. The item pools were refined on the basis of these statistics. Items that spread respondents out among categories and had a high index of discrimination ($p>=.50$) were retained. To ensure stability of each scale Cronbach alpha coefficients of reliability were computed: alpha R(ATSC)=.97 and alpha R(ATPC)=.90 The refined ATSC contains 32 items and the refined ATPC contains 19 items. A correlation of total scores for each of the two scales was computed to determine the degree of relationship existing between attitudes toward personal use of

computers and computing in schooling. (C=.80)

The following chart provides a summary of the statistics:

DATA SUMMARY FOR THE ATSC AND ATPC SCALES

	ATPC	ATSC
# of Items in Initial Pools	21	46
# of Items in Refined Pools	19	32
Reliability of Each Scale	.90	.97
Correlation of total scores on ATSC and ATPC		.80

(place table here)

CONCLUSIONS

The possible range of scores on the ATSC scale was High(ATPC)=160, Low(ATSC)=32. The possible range of scores on the ATSC scale was High(ATPC)=95, Low(ATPC)=19. The mean score for the ATSC was 125, while that of the ATSC was 54. These data indicate that the general attitude of the population was positive. From the correlation data it can be concluded that education majors at the University of South Florida who feel secure in their own personal use of computers, also feel positive toward the use of computers in schools. Further research is needed in many areas. First of all, each scale should be subjected to factor analysis to determine if constructs such as usefulness, interest, etc. are independent constructs and, if not, what factors are being

measured by the scales and how these factors relate to overall measures of attitude. Further evidence of validity should be gained by examining pre and post measures in courses where instructional goals involve improving attitudes toward the use of computers. Also studies should be conducted to determine how knowledge of, or prior experience with computers relate to attitudes.

SCALE ITEMS

The following are lists of the items for both attitude scales.

Attitudes Toward the Use of Computers in Schooling

____ **1. Training teachers to use computers should be a high priority.**

____ **2. Using computers in school management will improve the operation of most schools.**

____ **3. With computers we have the opportunity to improve instruction.**

____ **4. The evil of computers in schooling is that they will eventually replace a lot of good teachers.**

____ **5. School students would find learning with computers challenging and interesting.**

____ **6. Using computers to learn will diminish the physical fitness of students.**

____ **7. Most any educator can find a substantial use for a computer.**

____ **8. Most school administrators should learn to use computers.**

____ **9. A computer is nothing more than a glorified typewriter attached to an electric calculator.**

____ **10. Lessons on computers can be effective because they can correct student errors immediately.**

____ **11. Learning through the use of computers is dull and repetitious.**

____ 12. **Using computers in the classroom will create cold classroom atmospheres.**

____ 13. **The use of computers in schooling will erode the privacy of teachers.**

____ 14. **Using computers in schooling is just another fad that will be replaced with some other fad sooner or later.**

____ 15. **Using computers to teach is not anymore effective than using good books so why go to the expense of putting computers in schools.**

____ 16. **Effective administrators do not need computers to operate schools efficiently.**

____ 17. **Most teachers should learn to use computers.**

____ 18. **If computers are used in schooling, students will not develop basic skills.**

____ 19. **Computers will only put more work on the shoulders of school administrators.**

____ 20. **Students who learn using computers will have a definite advantage in life over students who have not learned to use computers.**

____ 21. **The use of computers in schooling will erode the privacy of students.**

____ 22. **Effective teachers do not need to use computers in their teaching.**

____ 23. **Using computers with young children will destroy their ability to develop good keyboarding skills and we will end up with a world full of people who "hunt and peck".**

____ 24. **Computers can be used in courses such as English, Art, Music, Creative Writing just as well as with courses in Science and Mathematics.**

____ 25. **With computers educators have the opportunity to transform outmoded methods presently used for schooling.**

____ 26. Students who use computers to learn with will become passive students.

____ 27. If we had better trained teachers we would not have to worry about using computers in education.

____ 28. Lessons on computers can be effective because they can correct student errors in a private impersonal way.

____ 29. With the right computer learning, students could learn to take greater responsibility for their own progress.

____ 30. With the right computer learning, students could develop more confidence in their ability to learn.

____ 31. Many teachers will not be able to learn to use computers no matter how they try.

____ 32. I feel confident that I could organize instruction for my students using computer programs that "instruct".

Attitudes Toward Personal Use Of Computers

____ 1. I would almost rather do anything than to work on a computer.

____ 2. I'm too active to get stuck sitting behind a computer.

____ 3. People who like to use computers are book geeks.

____ 4. I think I would feel powerful if I could use a computer well.

____ 5. I would rather achieve my goals without using a computer.

____ 6. I am afraid to use a computer.

____ 7. I would enjoy the challenge of using a computer.

____ 8. I don't feel sure of myself when it comes to learning to use a computer.

____ 9. I think it would be fun to work on a computer.

____ 10. I think that I can be more productive if I learn to use a

computer.

____ 11. I think it is okay for a male to use computers, but it's not okay for females.

____ 12. I avoid computers.

____ 13. People who play games on computers don't have much social life.

____ 14. I am afraid that I can't learn to use a computer.

____ 15. Computers are very interesting.

____ 16. A computer can do some good for just about anyone.

____ 17. Computers are for sissies who want to sit around.

____ 18. A computer could help me accomplish some important personal goals.

____ 19. I think I would enjoy playing games on a computer.

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